

Message Text

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EUR/RPE: DSWARTZ

EB/ORF/FFE: BMILAM (SUBS)

EUR/WE: JSWIHART (INFO)

EUR/SE: MHIRSHORN (INFO)

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E.O. 11652: N/A

TAGS: TECH

SUBJECT: IEA COOPERATION IN GEOTHERMAL R&D

1. AT OCTOBER 16, MEETING OF IEA R&D COMMITTEE MEETING IN PARIS,
U.S. INTENDS TO TABLE PAPER SUGGESTING INITIATION OF R&D COOPERATION
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ON SMALL GEOTHERMAL POWER PLANTS UNDER IEA SPONSORSHIP. THIS

ACTIVITY WOULD BE LOGICAL FOLLOW-ON OF CCMS SMALL POWER PLANT DESIGN STUDY BEING INITIATED. SUGGESTION IS TIMELY IN VIEW OF UPCOMING IEA GOVERNING BOARD MEETING ON R&D AT WHICH TIME AGREEMENT WILL BE SOUGHT TO BROADEN IEA R&D COOPERATION TO ADDITIONAL AREAS.

2. ADDRESSEE POSTS ARE REQUESTED TO PROVIDE TEXT OF PROPOSED U.S. PAPER TO APPROPRIATE OFFICIALS WHO DEAL WITH IEA R&D MATTERS. (SUGGEST A. ROSSI, R. CATALDI, ITALY AND M. NURKAN, TURKEY) ADVISE ROSSI AND NURKAN THAT PAPER IS IN KEEPING WITH THEIR DISCUSSIONS WITH DR. VANDERRYN, ERDA AT SEPTEMBER IEA R&D MEETING. ADVISE SADREFFIN ALPAN, TURKISH GEOLOGIC SURVEY, THAT CONCEPT OF THIS IEA INITIATIVE DISCUSSED WITH HIM IN MID-SEPTEMBER VISIT BY DR. JAMES BRESEE, ERDA. FURTHER, PIETRO CERON, ENEL, HAS AGREED TO SERVE ON CCMS DESIGN STUDY GROUP AND HAS BEEN INFORMED OF POSSIBLE IEA FOLLOW-ON TO DESIGN STUDY. U.S. HOPES THAT ITALIANS AND TURKS AGREE WITH U.S. PAPER AND WOULD BE PREPARED TO SUPPORT IT AT OCTOBER 16 MEETING. PLEASE REPORT REACTIONS AND, SHOULD THERE BE ANY SIGNIFICANT NEGATIVE REACTIONS, ADVISE ROSSI AND NURKAN THAT VANDERRYN PREPARED TO DISCUSS MATTER WITH THEM ON OCTOBER 16 IN PARIS PRIOR TO START OF R&D MEETING.

3. FOR U.S. MISSION OECD: PLEASE PROVIDE TEXT TO ITALIAN AND TURKISH MISSIONS INDICATING ACTIONS WHICH WE ARE TAKING. ALSO PASS COPY TEXT TO BOXER, IEA.

4. BEGIN TEXT:

INTERNATIONAL ENERGY AGENCY
RESEARCH AND DEVELOPMENT GROUP
INTERNATIONAL COOPERATION OF GEOTHERMAL R&D

SUGGESTIONS BY THE UNITED STATES

THE DESIRABILITY OF AN IEA ACTIVITY IN GEOTHERMAL R&D HAS BEEN DISCUSSED SEVERAL TIMES BY THE IEA R&D GROUP. THE FEBRUARY 20, 1975, NOTE PRESENTED BY THE U.S. DELEGATION SUMMARIZED ONGOING INTERNATIONAL ACTIVITIES, BOTH BILATERAL AND MULTILATERAL, AND SUGGESTED THAT "THE IEA SLT SHOULD SERVE AS THE PRINCIPAL FOCAL POINT FOR ITS MEMBERS TO COORDINATE THEIR MAJOR COOPERATIVE EFFORTS IN THE FIELD OF ENERGY R&D, WHEREVER PERFORMED."

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THE ITALIAN DELEGATION, IN ITS REPORT TO THE IEA R&D COMMITTEE OF SEPTEMBER 1975, MENTIONED THE VARIOUS ORGANIZATIONS WHICH CURRENTLY PROMOTE COLLABORATION IN THE GEOTHERMAL AREA AND SUGGESTED SEVERAL INFORMATION EXCHANGE ACTIVITIES FOR IEA, INCLUDING CONSIDERATION OF COMPARISON OF NATIONAL LAWS AND REGULATIONS CONCERNING GEOTHERMAL EXPLORATION AND EXPLOITATION.

AS A RESULT OF RECENT CONSULTATIONS, AND CONSIDERATION OF ONGOING GEOTHERMAL ACTIVITIES, IT NOW APPEARS TIMELY AND APPROPRIATE TO PROPOSE AN IEA COOPERATIVE GEOTHERMAL R&D ACTIVITY.

SMALL GEOTHERMAL POWER PLANTS (1-5 MWE) ARE OF CONSIDERABLE POTENTIAL VALUE IN BOTH DEVELOPED AND DEVELOPING COUNTRIES. IN THE FORMER, THEY CAN BE USED AS "WELL-HEAD" PLANTS, TO BEGIN ELECTRICITY PRODUCTION IN A NEW FIELD AND TO PROVIDE A REALISTIC TEST OF RESERVOIR CAPABILITY AND COMPONENT PERFORMANCE. IN THE LATTER, THEY CAN SERVE THE POWER NEEDS OF AN ENTIRE REGION BASED ON A DOMESTIC RESOURCE, WHERE GEOGRAPHY AND HIGH IMPORTED ENERGY COSTS HAVE HAMPERED ELECTRIFICATION.

ALTHOUGH SUCH SYSTEMS HAVE BEEN OCCASIONALLY EMPLOYED IN THE PAST, NOTABLY IN ITALY, THERE HAS NOT BEEN A GENERAL RECOGNITION OF THEIR VALUE UNTIL RECENTLY. AT A WORKSHOP IN BERKELEY ON JUNE 2, 1975, ATTENDED BY 15 COUNTRIES AND A FOLLOW-ON CONFERENCE IN THE AZORES IN SEPTEMBER, 1975, INTERNATIONAL SUPPORT FOR WIDER USE OF THE CONCEPT WAS VOICED. AS A RESULT, A SET OF SPECIFICATIONS FOR A PROTOTYPE PLANT ARE PRESENTLY BEING DEVELOPED BY A COMMITTEE OF EXPERTS FROM FIVE COUNTRIES INCLUDING ITALY, JAPAN, NEW ZEALAND, TURKEY AND THE U.S. WHEN COMPLETED, THEY WILL BE AVAILABLE FOR NATIONAL OR INTERNATIONAL USE IN THE DESIGN AND CONSTRUCTION OF A PROTOTYPE PLANT.

IT IS PROPOSED THAT THE IEA ASSUME THE RESPONSIBILITY FOR FURTHERING THE CONCEPT OF SMALL GEOTHERMAL POWER PLANTS. DESIGN AND CONSTRUCTION OF A PROTOTYPE UNIT PLUS INITIAL OPERATIONS, ALL UNDER INTERNATIONAL AUSPICES, WOULD PROVIDE RAPID SHARING OF THE EXPERIENCE GAINED AND A GREAT STIMULATION FOR THE GROWTH OF A VIABLE COMMERCIAL MARKET CAPABLE OF PROVIDING LOW-COST UNITS FOR DEVELOPED AND DEVELOPING COUNTRIES.

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THE LOCATION OF THE FIRST PROTOTYPE INSTALLATION WOULD DOUBTLESS INFLUENCE THE SOURCE OF FUNDING, ESTIMATED TO TOTAL LESS THAN \$5 MILLION, SINCE THE BENEFITS OF A DEVELOPED FIELD AND POWER PRODUCTION COULD NOT DIRECTLY BE SHARED. THE HOST COUNTRY WOULD NOT ONLY FURNISH WELLS BUT ALSO MIGHT BE EXPECTED TO CONTRIBUTE MORE THAN A SIMPLE PRORATED SHARE OF THE SURFACE FACILITIES.

AS AN EXAMPLE OF A SITE WHICH COULD SERVE FOR THE FIRST TEST LOCATION, THE KIZILDERE AREA OF SOUTHWEST TURKEY IS WELL SUITED FOR THE INSTALLATION OF A 15 MWE GEOTHERMAL PILOT PLANT. A SMALL, NONCONDENSING UNIT GENERATING A MAXIMUM OF 120 KW FROM A SINGLE WELL IS PRESENTLY OPERATING SATISFACTORILY WITHOUT REINJECTION. HOWEVER, A SMALL REINJECTION EXPERIMENT IS BEING CONDUCTED NEARBY, AND A LARGE DEEP REINJECTION WELL IS TO BE DRILLED WITHIN THE NEXT SEVERAL MONTHS. FOUR PRODUCTION WELLS,

ONE OF WHICH IS NOW BEING USED, ARE AVAILABLE FOR THE PROTOTYPE PLANT WITH ADEQUATE SPARES (FIFTEEN SUCCESSFUL WELLS HAVE BEEN DRILLED).

SUCH AN INITIAL INSTALLATION IN TURKEY WOULD PROBABLY HAVE TO BE A NONCONDENSING TURBINE, SINCE THE STEAM FROM THE PRESENT PRODUCTION WELL CONTAINS 22 PCT CO₂. CALCITE FORMATION IN THE WELLS IS ALSO RELATED TO THE HIGH CO₂ OVERPRESSURE AND IS CONTROLLED BY MAINTAINING

A 15 ATMOSPHER BACK PRESSURE AT THE WELL-HEAD. HOWEVER, UNDER SIMILAR CIRCUMSTANCES IN ITALY, WELL PRODUCTION HAS GRADUALLY REDUCED CO₂ AND CALCITE PROBLEMS AND ALLOWED LATER INSTALLATION OF CONDENSING TURBINES. AN INITIAL NONCONDENSING PRODUCTION OF 2-1/2 MWE IN TURKEY MAY THUS ULTIMATELY YIELD 5MWE WITH A CONDENSER. OTHER SITES IN INTERESTED COUNTRIES CAN ALSO BE IDENTIFIED.

PROPOSAL:

1. THE IEA R&D COMMITTEE SHOULD ENDORSE IEA SPONSORSHIP OF APPROPRIATE R&D COOPERATIVE ACTIVITIES IN THE GEOTHERMAL AREA.
2. A GROUP OF EXPERTS SHOULD BE ESTABLISHED, COMPRISED OF TECHNICAL EXPERTS FROM THE INTERESTED MEMBER COUNTRIES, TO EXAMINE POTENTIAL COOPERATIVE GEOTHERMAL R&D PROGRAMS FOR IEA SPONSORSHIP.
3. AS A MATTER OF FIRST PRIORITY, THE EXPERT GROUP SHOULD MAKE

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RECOMMENDATIONS TO THE R&D GROUP REGARDING THE PROPOSAL OUTLINED ABOVE

FOR THE DESIGN, CONSTRUCTION AND OPERATION OF SMALL (1-5 MWE) GEOTHERMAL POWER PLANTS. END TEXT.
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